



INSECTS OF SAMOA

PART VII. FASC. 1

I S O P T E R A

Family : TERMITIDAE

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(With 14 Text-figures, and 1 Plate)

IN December 1925, Dr. P. A. Buxton very kindly sent me for examination a collection of Termites made by him and his assistant, Mr. G. H. E. Hopkins, during their sojourn in the Samoan Islands. I am greatly indebted to Dr. Buxton for the privilege of working out this very interesting collection, to Mr. J. A. Kershaw for facilities provided at the National Museum, and to Mr. C. A. Lambert for courteously preparing the photomicrographs.

The types and other specimens are in the British Museum (Natural History); para-types are in the National Museum, Melbourne, and in my own collection.

HISTORICAL

The first published record of Termites in the South Sea Islands appears to be that of Rainbow (1897), who recorded *Calotermes marginipennis* Latr., from the island of Funafuti, Ellice Group. In 1905 Desneux described eight species and one sub-species from German New Guinea. Four years later Silvestri (1909) described two species from the Samoan Islands. Six new species and one species previously known to occur in Borneo were recorded from German New Guinea by Holmgren in 1911, and in the following year the same writer described a new species from Samoa. The descriptions of eight species from New Hebrides, New Caledonia and Loyalty Islands, by N. and K. Holmgren, followed in 1915. In 1925 Snyder published a paper on the Termites of the Solomon Islands and Santa Cruz Archipelago, in which thirteen species

and one variety were described as new; and later in the same year I described two species from Lord Howe Island. In three papers now in course of publication (Hill, Memoirs of National Museum, Melbourne, No. 7, and Proc. Roy. Soc. Vic., xxxviii.), thirteen species are described from New Guinea, New Britain, New Ireland, New Hebrides and Solomon Islands, the species misidentified as *Calotermes marginipennis* Latr., by Rainbow, is described as new, and two species are described from Fiji. Amongst the proposed new species from the Solomon Islands are two which may prove to be synonymous with forms described by Snyder.

SAMOAN TERMITES

Only three species of Termites have been recorded previously from the Samoan Islands, namely, *Calotermes samoanus* Holmgr., *Protrichotermes inopinitus* Silv., and *Microcerotermes peraffinis* Silv., Dr. Buxton's collection contains complete series of each of these, and, in addition, four species of the genus *Calotermes*, of which number two are described here as new, one is referred to a recently described species known hitherto only in the alate form, and one is considered to be specifically indeterminable.

1. *Calotermes* (*Neotermes*) *samoanus* Holmgren.

Entom. Mitteilungen, Deutschen Entom. Mus., Bd. i, No. 9, 1912.

Text-figs. 1-4; Plate 1, figs. 1, 2.

This species was described from an imperfect imago from Apia, Samoa; the soldier has not been described previously.

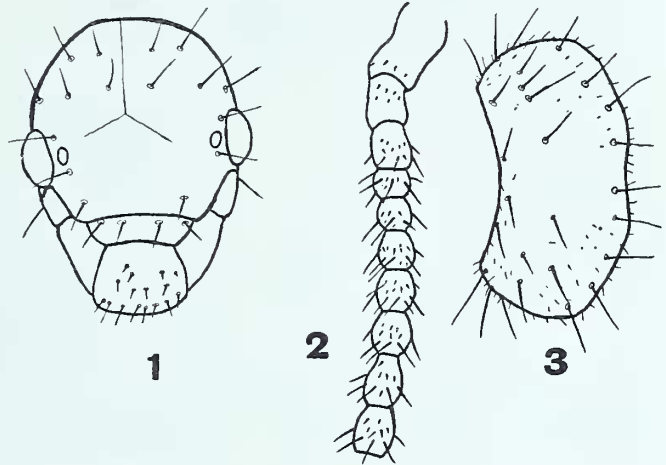
IMAGO (*redescribed*)

Colour.—Head light chestnut, darker than *C. sanctaecrucis* Sny. ("light castaneous (reddish-brown)"), darker than *C. rainbowi* Hill; thorax and abdomen slightly darker than head; wing-stumps darker than thorax; wings cinnamon-brown, darker than those of last-mentioned species, veins darker than membrane.

Head (Text-fig. 1).—Longer than wide, glabrous, with a few long setae; frons flat, with obscure depressions. Eyes sub-triangular, diam. 0.51×0.51 – 0.54×0.54 , prominent, 0.35 – 0.40 from lower margin of head. Ocelli very close to eyes, broadly oval, long diameter about one-third that of eye. Clypeus stramineous, wide, a little less than four times wider than long, truncate in front,

with two pairs of moderately long setae. Labrum a little wider than long (0.68×0.51), markedly rounded on sides and convex above, rounded at apex where there are a few short setae. Antennae (Text-fig. 2) 18-jointed; 3rd segment about as long as 2nd, but narrower at base and darker in colour; 4th–6th globular, narrower than 3rd; 7th–16th increasing in length progressively.

Thorax (Text-fig. 3; Pl. 1, fig. 1).—With a few very long and numerous minute setae, wider than head, strongly concave in front, widest across the middle sides rounded and with faintly impressed margin, posterior margin sinuate.



Calotermes (N.) samoanus. TEXT-FIG. 1.—Head of imago.
TEXT-FIG. 2.—Antenna of imago. TEXT-FIG. 3.—Pronotum of imago.

Wings (Pl. 1, fig. 2).—Wing-stumps with very few and very short setae. Forewing with four branches from the radial sector to costa, the median vein typical of sub-genus, the cubitus passing through the middle of wing to near its extremity where it bends down to join the border a little below the apex of wing, with nine or ten inferior branches. In the hindwing the median vein branches from the radial sector at about the proximal fifth of wing; the cubitus passes through the middle of wing and has seven or eight branches. Anal veins distinct in hindwings, obscure or wanting in forewings.

Legs.—Yellowish-brown, tibiae darker, clothed with scanty long and short setae; tibial spurs 3 : 3 : 3, long and slender.

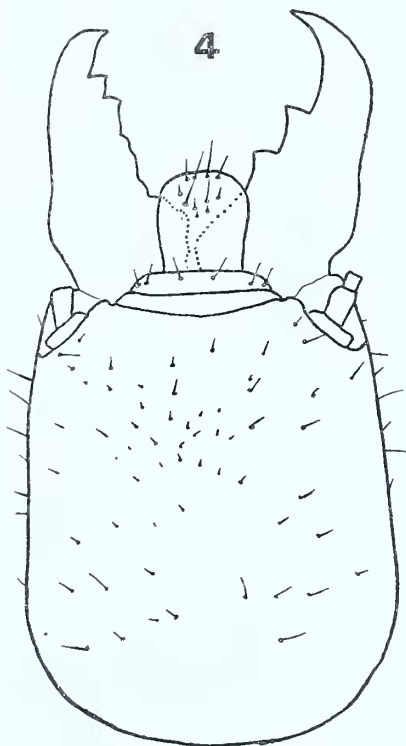
Abdomen.—With setae as on pronotum; styli present in male, very small.

Measurements.	mm.
Length with wings	18.00
Length without wings	8.50–9.00
Head, to apex of labrum, long	2.40
Head, to clypeofrontal suture, long	1.76
Head, at and including eyes, wide	1.76–1.82
Pronotum, long 1.19–1.42; wide	2.05–2.28
Forewing, long 13.00; wide	4.40
Tibia iii, long	1.50–1.60

SOLDIER

Colour.—Head chestnut, mandibles black (sometimes castaneous at base), pronotum buckthorn-brown, legs clay-colour.

Head.—(Text-fig. 4). Large, generally widest in middle, but sometimes parallel on the sides, with very scanty, moderately long setae. Antennae long, extending beyond apex of mandibles, 15- to 18-jointed, generally 17-jointed; variable in segmentation; 3rd segment distinctly longer than 2nd and 4th, subclavate, or equal to, or very little longer than, 4th; 3rd and 4th sometimes sub-equal and distinctly shorter than 2nd; 5th–12th increasing in length progressively; 13th to penultimate segments about as long as 12th, the apical segment shorter and narrower than the penultimate. Left mandible with two large angular teeth in the apical third, followed by a large double tooth slightly in advance of the apex of the labrum, the right with two very large teeth about the middle, the hindmost in line with the apex of labrum. Labrum large, rounded at apex where there is a group of about six large setae. Clypeus without conspicuous setae. Gula long and narrow, nearly parallel on the sides.



TEXT-FIG. 4. *Calotermes (N.) samoanus*.—Head of soldier.

Thorax.—Pronotum large, not as wide as head, strongly concave in front, rounded on sides and very nearly straight behind, with very scanty long setae and scarcely more very short ones, the margin impressed.

Legs.—Moderately long and stout, with only a few long setae on femora, more numerous and interspersed with short ones on tibiae; tibial spurs 3 : 3 : 3, moderately long and stout.

Abdomen.—Clothed similarly to pronotum; cerci and styli small.

Measurements.	mm.
Total length	12.00-13.00
Head, with mandibles, long	4.90- 6.00
Head, without mandibles, long	3.13- 4.00
Head, wide	2.75- 3.13
Head, deep	2.00- 2.28
Gula, at narrowest part, wide	0.28- 0.39
Pronotum, long, max. 1.42-1.70 ; min.*	1.19- 1.53
Pronotum, wide	2.45- 3.00
Tibia iii, long	1.80- 2.20

Locality.—Samoan Islands: Malololelei, Upolu Is., 2,000 ft., soldiers, imagos and nymphs, 20.6.24, type colony for soldier; same locality, soldiers and nymphs, 23.2.24 (No. 623), from galleries in rotten wood; Mt. Vaea, Upolu Is., soldiers and nymphs, 17.10.25, in rotten log; Vailima, Upolu Is., alate imago, 7.10.25; same locality, soldiers and nymphs (No. 682), June 1924, from rotten log; same locality, "first-form" king and queen, 8.6.24, from rotten wood.

Allied species.—The imago is very similar to *C. rainbowi* Hill, but it is darker in colour and has much longer and more numerous setae on pronotum and abdomen. The soldier differs from *C. rainbowi* in having darker and wider head, narrower gula and relatively shorter pronotum. From *C. sanctae-crucis* Sny., the imago differs in its smaller size, much smaller pronotum, smaller head, eyes and ocelli and two or three joints less in antennae. Both species have scattered large setae on head, thorax and abdomen, but they are fewest and largest on Snyder's species. From the New Britain species which I have described and provisionally referred to *C. papua* Desneux (Hill, Mem. Nat. Mus. Melb., No. 7, 1926), the imago differs in being a little larger, antennal joints larger and darker, and head larger and less setaceous. In the soldier caste the Samoan species differs from the New Britain insect in having a darker, more rounded and more setaceous head, differently sculptured frons, and much more setaceous pronotum and abdomen. The imago of *C. sanctae-crucis* is distinguished from *C. rainbowi* by its larger size, larger eyes and ocelli, larger setae on head, thorax and abdomen, and much larger pronotum.

A fungus found growing on the fore-leg of termites of this species will be described and figured by Mr. P. C. Tate, in a forthcoming part of *Parasitology*.

* *I.e.* measured in median line. See Light, Philippine Jr. Sc., xix. (1), p. 29, July 1921.

2. *Calotermes (Calotermes) repandus* Hill.

"Entomologist," vol. 59, p. 297, 1926.

Text-figs. 5-9; Plate 1, figs. 3, 4.

IMAGO

Colour.—Head, thorax and basal segments of abdomen light brown (Sandford's brown); wing-stumps and apical segments of abdomen darker (hazel); labrum, antennae and tibiae clay-colour; wings hyaline, veins cinnamon-brown.

Head (Text-fig. 5).—With scanty long setae, broadly rounded behind, narrowed to the base of mandibles, frons with a distinct depression on either side of the middle. Clypeus large, anterior half whitish and slightly concave anteriorly. Labrum strongly convex, slightly widened on the sides, broadly rounded at apex. Eyes sub-triangular, large (0.46×0.46), very prominent, 0.25 from lower margin of head. Ocelli large (0.136×0.170), prominent, very close to eyes. Antennae 17- to 18-jointed; 3rd segment about as long as 2nd, a little darker and narrower at base; 4th much shorter than 3rd, very little shorter and narrower than 5th; 6th-16th or 17th increasing in length progressively; apical segment as long as, but narrower than, preceding one.

Thorax (Text-fig. 6; Pl. 1, fig. 3).—Pronotum very large, wider than head, deeply concave in front, sides nearly straight, posterior margin broadly rounded and slightly concave in the middle, margins impressed, with scanty short setae; posterior margin of meso- and metanotum as in pronotum.

Wings (Pl. 1, fig. 4).—Wing-stumps glabrous, with very few and very short setae; stumps of forewings large, nearly covering those of hindwings, apex markedly convex in forewings, only slightly convex in hindwings. Venation variable; in forewings the sub-costa is short, about one-third as long as radius; radius joining costa about the middle of wing; radial sector with about six branches, the first joining the radius before the latter joins the costa; median vein in typical position for the sub-genus, distinct only at the base; cubitus with only about six of the proximal branches discernible. Hindwing with sub-costa not extending beyond suture; radius joining costa beyond the middle of wing; radial sector with four or five branches, the first commencing a little before the junction of the radius with the costa; median vein branching from the radial sector close to base of wing, very indistinct at base, then becoming gradually indiscernible as it passes through the middle of the wing; cubitus as in forewing.

Legs.—Short and moderately stout, with few setae ; tibial spurs 3 : 3 : 3, small.

Abdomen.—Glabrous, very little widened about the middle, tergites with scanty apical fringe of moderately short and very short setae and a scantier row about the middle ; styli (male) very small ; seventh sternite of female not much longer than sixth.

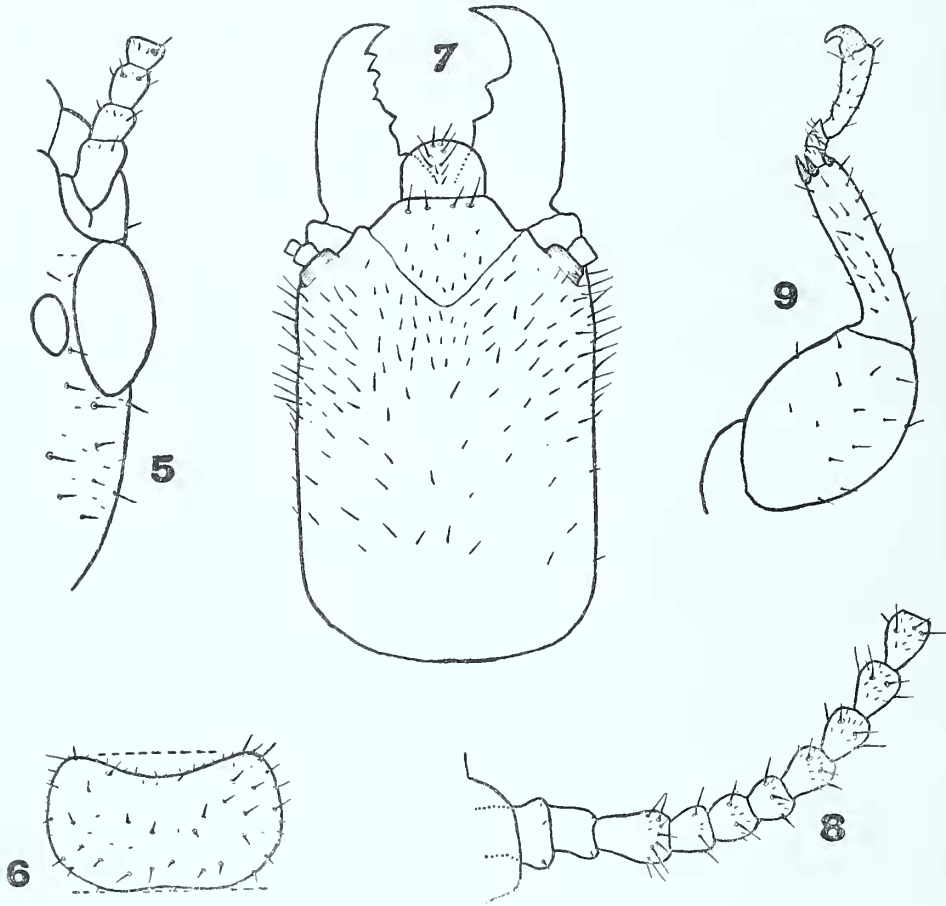
Measurements.	mm.
Length with wings	15.00
Length without wings	8.00–8.50
Head, to apex of labrum, long	2.00
Head, to clypeofrontal suture, long	1.42
Head, wide	1.62
Pronotum, long 1.19–1.31 ; wide	1.82
Forewings, long 11.5 ; wide	3.13
Hindwings, long 11.0 ; wide	3.19
Tibia iii, long	1.33

SOLDIER

Colour.—Head burnt sienna, labrum and antennae ochraceous-tawny, anteclypeus hyaline, mandibles black (dark castaneous at base), pronotum, legs and abdomen clay-colour.

Head (Text-fig. 7).—With rather numerous setae on posterior half, distinctly more numerous on frons and behind antennal foveolae, sides parallel, posterior margin broadly rounded, frons slightly concave and obscurely sculptured ; viewed from the side the head is shallow and the mandibles distinctly bent upwards. Labrum short and wide, broadly rounded in front, the margins impressed, a group of setae near its apex. Mandibles very stout, with two short teeth about the middle on the right, the hindermost nearly or quite concealed by the labrum, the left with two teeth near the apex and a large single tooth opposite the angle between the two teeth on the right. Gula long and rather wide, hardly widened posteriorly. Antennae (Text-fig. 8) 13- to 15-jointed ; 1st short and stout, much swollen apically, nearly hidden from above by antennal carina ; 2nd very short, nearly quadrate ; 3rd nearly twice as long as 2nd, dark in colour, clavate ; 4th about as long as 2nd and narrower ; 4th–10th increasing in length and becoming progressively narrower at base ; 11th–14th elongate, about as long as 10th ; apical segment shorter and narrower than one preceding it. In a few examples the antennal joints are relatively shorter and stouter than in the majority.

Thorax.—Pronotum very little wider than head, with few setae, anterior margin deeply and obtusely notched, the sides at first slightly and then more sharply narrowed to the narrow and faintly sinuate posterior margin. Posterior



TEXT-FIG. 5. *Calotermes (C.) repandus*.—Side of head, showing eye, ocellus and basal segments of antenna of imago. TEXT-FIG. 6.—Pronotum of imago. TEXT-FIG. 7.—Head of soldier. TEXT-FIG. 8.—Antenna of soldier. TEXT-FIG. 9.—Hind leg of soldier.

margin of meso- and metanotum as in pronotum or with slightly prolonged posterolateral corners.

Legs (Text-fig. 9).—Very short and stout, with a few long setae; claws large; tibial spurs short, stout, finely serrated, 3 : 3 : 3.

Abdomen.—Long and narrow, with very few setae, these mostly arranged as a fringe of long and short ones at apex of segments and in a scantier row about the middle.

Measurements.	mm.
Total length	10.00-13.50
Head, with mandibles, long	3.85- 5.15
Head, without mandibles, long	2.50- 3.60
Head, wide	1.70- 2.33
Head, deep	1.25- 1.70
Gula, at narrowest part, wide	0.28- 0.50
Antenna, long	2.28
Pronotum, long (max.) 1.08-1.70 ; wide	1.75- 2.45
Tibia iii, long	0.96- 1.36

The pronotum length recorded above is the distance between imaginary lines as shown in Text-fig. 6, *i.e.* the maximum length ; the actual length of the sclerite taken in the median line is only 0.90-1.50. In all my earlier papers I have recorded the maximum length only.

Locality.—Samoan Islands : Apia, Upolu Is., alate imago (type), 6.4.25 ; same locality, alate imago, 1.5.25 ; same locality, alate imago, August 1925 ; same locality, deälated male and female, February 1925, in rotten Anona tree ; same locality and month, queen, two soldiers and two nymphs, in rotten tree ; Mulifanua, Upolu Is., two soldiers ; Aleipata, Upolu Is., soldiers, nymphs and larvae (No. 639), 7.4.24, in large forest tree in which was found also a colony of *Prorhinotermes inopinatus* Silv. Also recorded from Fiji (Hill, Proc. Roy. Soc. Vic., in Press).

3. *Calotermes* (*Cryptotermes*) *buxtoni* Hill.

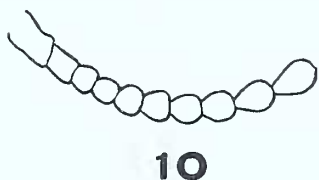
“Entomologist,” vol. 59, p. 298, 1926.

Text-figs. 10-14.

IMAGO

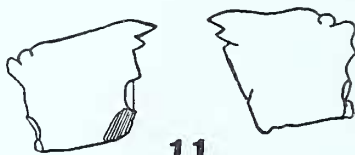
There appears to be no reliable character by which the imago of this species can be distinguished from *Cryptotermes primus* Hill (from Townsville, N. Queensland), which is described in Proc. Linn. Soc. N. S. Wales, xlvii. (4), p. 446, 1921. The eyes appear to be always larger in the Queensland species, but there is very little difference between the largest in the one and the smallest in the other. The antennae (Text-fig. 10) are 16-jointed ; 2nd segment stout, nearly as wide and about two-thirds as long as 1st ; 3rd variable, shortest and narrowest of all or a little longer than 4th ; 4th-15th increasing in length progressively ; 16th elongate-oval, shorter and narrower than 15th. Wings hyaline with light brown costa, sub-costa, radius and radial sector, a few setae

on wing-stumps and on costa as far as extremity of radial sector, none elsewhere; membrane with many scale-like micrasters; sub-costa of forewing very short, sometimes fused with costa at or a little beyond suture; radius short, joining costa a little beyond first branch of radial sector; radial sector with from five to seven branches to the costa, the first long, the others decreasing in length progressively, all very distinct to their termination; media obscure, joining radial sector at about the anterior one-third of wing, not thickened at its extremity; cubitus with about twelve branches, these nearly always simple, the main stem passing through the middle of wing to about the apical third,



10

TEXT-FIG. 10. *Calotermes (C.) buxtoni*.—Basal segments of antenna of imago.



11

TEXT-FIG. 11.—*Calotermes (C.) buxtoni*.
Mandibles of imago.

then rising slightly before descending to its junction with the wing margin just below the apex of the wing. Hindwing with four to seven branches from the radial sector; media shorter than that of forewing, branching from radial sector near the suture and rejoining it a little beyond middle of wing, its extremity not thickened; cubitus passing through middle of wing to a point opposite termination of media, then rising to the anterior third before descending to its termination just below apex of wing. Mandibles and pronotum as in Text-figs. 11 and 12.

Measurements.	mm.
Length with wings	9.75–10.00
Length without wings	6.25
Head, to apex of labrum, long	1.30
Head, to clypeofrontal suture, long	1.00
Head, wide	0.97
Eyes, diam.	0.23 × 0.30–0.28 × 0.32
Pronotum, long 0.62–0.68; wide	0.91– 1.12
Forewing, long 7.00–7.25; wide	1.95
Tibia iii, long	0.55

SOLDIER

Colour.—Head and mandibles black, the former shading to dark castaneous at base.

Head (Text-figs. 13, 14).—Finely shagreened, short and wide, widest at

anterior fourth, slightly narrowed to the broadly rounded posterior margin, with scanty minute setae, anterodorsal margin (frontal flange) convex, projecting well over frons, deeply and narrowly incised in middle, frons deeply excavated and vertical, the horn-like prolongation of lower lateral margin of head long and stout, directed upwards at same angle as mandibles, the latter short, stout and markedly bent upwards. Labrum pale, widest at base, narrowed to the bluntly pointed apex. Antennae 13-jointed, very short.

Thorax.—Pronotum (Text-fig. 14) nearly as long as wide, as wide as head, the anterior margin thickened, bent up, obtusely notched in middle, anterolateral angles wide and markedly elevated, sides and posterior margin rounded, the latter slightly concave in the middle, entire margin fringed with scanty, very small setae. Posterior margin of meso- and metanotum as in pronotum.

Legs.—Short and stout, with few setae; tibial spurs 3:3:3, serrate.

Abdomen.—Short, wide in the middle and sharply tapered to the pointed apex, apex of segments with scanty fringe of setae somewhat longer than those on thorax.

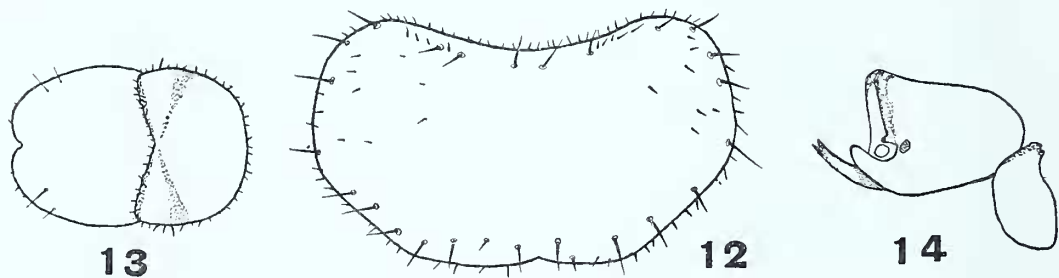
Measurements.	mm.
Total length (head bent at angle 45°)	4.00
Head, from base to frontal flange, long	1.17
Head, to apex of mandibles, long	1.70
Head, wide	1.25
Head, deep	1.08
Pronotum, long 1.20; wide	1.25
Tibia iii, long	0.75

Locality.—Samoan Islands: Apia, Upolu Is., 10.12.24.

Described from a small colony comprising several alate imagos, one soldier and many nymphs and larvae, found in galleries in a chair. The collection contains another imago from same locality, taken at light in March. Buxton informs me that this is the only case of damage to furniture, by this or any other species of Termite, which came to the knowledge of himself or Mr. Hopkins during two years in Samoa; no damage to the structure of houses was observed, and none of damage to trees or crops. The highly indigenous Termite fauna of Samoa appears to be at present harmless.

Allied species.—The following additional comparisons with previously described species may be noted: The imago is also very similar to *C. arcanus* Hill (Proc. Roy. Soc. Vic., xxxvii (2), p. 214, 1925), from which it appears to differ chiefly in its lighter coloured head, body and wings. The soldiers of *C.*

primus and *C. arcanus* are quite distinct from each other and from *C. buxtoni*. From *C. primus* the latter differs markedly in having a larger and more rounded head, anterodorsal margin of head (frontal flange) as seen from above strongly convex and deeply incised in the middle (not straight and without deep median incision), and projecting beyond vertical frons as seen in profile, shorter and more upturned mandibles and distinctly different shaped pronotum. From *C. arcanus* (from Lord Howe Is.) it differs in its larger size, vertical frons, mandibles shorter and markedly bent upwards (not nearly parallel with axis of head), frontal flange when viewed diagonally from behind convex and deeply incised in the middle (not concave and without median incision), pronotum larger, with anterolateral corners larger and distinctly more elevated. From *C. secundus* Hill (Proc. Roy. Soc. Vic., xxxvii. (2), 215), it differs as above in



Calotermes (C.) buxtoni. TEXT-FIG. 12.—Pronotum of imago. TEXT-FIG. 13.—Head and pronotum of soldier, viewed obliquely from behind. TEXT-FIG. 14.—Head and pronotum of soldier in profile.

most of the features enumerated, but especially in the form of the frontal flange. From *C. gulosus* Hill (Mem. Nat. Mus., Melb., No. 7, in Press), the imago differs chiefly in its smaller eyes and pronotum. From the soldier of *C. gulosus* it differs in its larger size, frontal flange as viewed from above much more deeply incised in the middle and differently sculptured, and, viewed laterally, projecting further over the frons, pronotum larger and of different shape. From the imago of *C. torresi* Hill (MS), it differs in its lighter colour and larger size, distinctly larger head, larger eyes and longer pronotum. In the soldier caste it differs from this Thursday Is. species in having the median incision in the frontal flange much deeper and narrower and connected with a rather large and deep impression in the upper part of the frons (in *C. torresi* there are two smaller impressions, one on each side of the median line, in this position), the pronotum larger and with anterolateral corners more bent up and the anterior margin much more widely and a little more obtusely emarginate. The imago

differs from *C. hermsi* Kirby (from Fanning Is.) in having smaller and less prominent eyes, the facets larger and the pronotum less setaceous. The soldier differs in its slightly larger size, the frontal flange projecting further over the frons, the median incision very much deeper and extending into the frons (in *C. hermsi* it is obscure when viewed obliquely from behind and does not extend into the frons), and the horn-like projection on either side of the frons stouter. From *C. repentinus* Hill (Mem. Nat. Mus., Melb., No. 7), from New Britain, it is distinguished by its larger size, longer and paler wings, etc. Authenticated specimens of the following additional species have been compared with the present species :—*C. brevis* Walk., *C. thompsoni* Sny., *C. cyanocephalus* Light, *C. nocens* Light, and *C. cavifrons* Banks.

4. *Calotermes* (*Cryptotermes*), spp.

Two alate imagos from Pago Pago, Tutuila Is., Samoan Islands, 12.8.25, are intermediate in size between *C. buxtoni* and the species referred to in the following paragraph ; they may represent a distinct species, but this cannot be determined until a complete series is available for examination.

The collection contains also a single alate imago from Neiafu, Vavau Is., Tonga Group (March 1925), which appears to be specifically distinct from previously described species. It is considerably smaller than *C. buxtoni*, from which it differs also in having slightly larger eyes, smaller and more quadrate pronotum and relatively longer and narrower head. A closely related form has been collected recently by Mr. A. M. Lea in Fiji.

5. *Calotermes* (*Glyptotermes*) *xantholabrum* Hill.

Mem. Nat. Mus., Melb., No. 7 (In Press).

This species was described from two alate imagos from Rabaul, New Britain ; the soldier has not been described hitherto. The imagos in the several series referred to below agree with the type, whilst the nymphs and larvae associated with them agree with those associated with the two soldiers from Apia. On this evidence of conspecificity one of the soldiers has been selected as morphotype, and is described here. For several reasons the selection of such a specimen as secondary type is open to objection, but as no difference can be detected between the New Britain and Samoan imagos, and as there is very

little probability of the imagos and soldiers from the latter locality being otherwise than conspecific, it seems advisable to follow this course. It is quite possible, however, that in this sub-genus, as in *Cryptotermes*, there are species with markedly different soldiers which cannot be differentiated satisfactorily in the alate caste.

SOLDIER

Colour.—Head burnt sienna, antennae and legs a little lighter, mandibles dark castaneous with black tips, remainder of insect tawny.

Head.—Finely shagreened, with very few moderately long reddish setae, almost parallel on sides, broadly rounded behind, frons broadly and deeply concave, but without frontal flange, sloping at an angle of 45° to axis of head. Clypeus shagreened, large, slightly arcuate in front, with a transverse row of minute setae about the middle. Labrum shagreened, large, a little wider than long, wide at base, slightly swollen on sides and broadly rounded in front, apex barely covering second tooth on left mandible, the entire margin narrowly impressed, a group of about twelve relatively large setae near apex. Antennae very short, extending little beyond apex of mandibles; 10-jointed, 1st segment short and stout; 2nd about two-thirds as long as 1st and one-fourth narrower; 3rd very short and narrow, widest apically and closely fused with 4th; 5th about as long as 2nd, but much wider; 6th–8th globular; 9th a little longer than wide; 10th about as long as 9th, but much narrower. Mandibles short and stout; the left with two short teeth on the apical half and another about the middle; the right with two short stout teeth about the middle, the angle between them opposite the apex of hindermost tooth on left; other teeth, if present, cannot be demonstrated without dissection. Gula short and wide. Intersegmental membrane surrounding cervical sclerites whitish and markedly shagreened.

Thorax.—Pronotum very little narrower than head, short, with scanty short and long setae and narrowly impressed margin, anterior margin concave, anterolateral angles very little rounded, sides sloping to the broadly rounded posterior margin. Posterior margin of meso- and metanotum slightly sinuate.

Legs.—Short and stout, with few setae; claws and tibial spurs large, the latter serrate, 3 : 3 : 3.

Abdomen.—Long and narrow, widest in middle, tapered thence to the bluntly pointed apex; apex of segments with scanty fringe of long and very short setae. Cerci and styli moderately large.

Measurements.	mm.
Total length	5.00-6.00
Head, with mandibles, long	1.60-1.70
Head, without mandibles, long	1.17
Head, wide	0.85
Head, deep	0.77
Gula, at narrowest part, wide	0.22
Pronotum, long 0.40-0.45 ; wide	0.76-0.82
Tibia iii, long	0.47

Locality.—Samoan Islands : Malololelei, Upolu Is., 2,000 ft., several imagos and nymphs, 21.6.24 ; same locality larvae and nymphs, 18.4.25 ; same locality, one deãlated imago, 3.6.24 ; Apia, Upolu Is., two soldiers and several larvae and nymphs (No. 633) in rotten wood, 27.3.24 (Type colony for soldier) ; same locality, one alate imago, 4.7.24 ; same locality, ten imagos (mostly immature) and several larvae and nymphs (No. 603), in rotten log, 31.1.24.

A Gamasid Mite which was found adhering by its anus to the antennae of this species of Termite, in Apia, will be described by Mr. A. S. Hirst in Part VIII of this work.

6. *Prorhinotermes inopinatus* Silvestri.

Die Fauna Südwest-Australiens, Isoptera, ii. (17), 1909.

This species is represented in the Buxton and Hopkins collection by six colonies, as follows :—

Three colonies of soldiers and workers from Vailima, Upolu Is., from April to June 1924 ; in rotten wood.

Numerous soldiers, brachypterous kings and queens, workers and larvae from Malololelei, Upolu Is., 23.2.24 ; in rotten post.

Alate imagos, soldiers and workers from Nuutele Is., 9.4.24.

Deãlated imagos, soldiers and workers from Apia, Upolu Is., 10.7.24 ; in rotten Kapok stump.

Numerous apterous and brachypterous kings and queens, soldiers, workers and larvae (No. 760) from Apia, May 1925 ; from paper stored on floor.

In addition to the above, the following specimens in the collection of the Bishop Museum have been examined ; from Amauli, Tutuila Island, nest on coconut palm (Swezey and Wilder) ; from Pago Pago, Tutuila Island (Bryan) ; several specimens from Apia, Upolu Island.

The apterous reproductive form has lightly chitinized body, as in soldier. 16- to 19-jointed antennae, small unpigmented eyes, no ocelli and lateral and posterolateral margins of meso- and metanotum slightly thickened and expanded. The brachypterous form is much more heavily chitinized, and has 17- to 19-jointed antennae, large eyes without or with slight pigmentation, eye facets developed, ocelli present, lateral and posterolateral margins of meso- and metanotum broadly expanded so as to leave the posterior margin deeply and narrowly notched in the middle, as figured by Silvestri.

The soldier is described as having 17-jointed antennae ; the number ranges from 17 to 20 in series collected by Dr. Buxton. There is also a considerable range of variation in the shape and size of the head and in the body length of individuals from the same colony. The following measurements are from three selected specimens from the colony, collected in Apia in May :—

Measurements.	mm.
Total length	3·76 ; 6·50 ; 7·00
Head, with mandibles, long	2·00 ; 2·50 ; 2·67
Head, without mandibles, long	1·20 ; 1·65 ; 1·76
Head, wide	0·90 ; 1·36 ; 1·42
Pronotum, long	0·40 ; 0·68 ; 0·68
Pronotum, wide	0·68 ; 1·19 ; 1·25

7. *Microcerotermes peraffinis* Silvestri.

Die Fauna Südwest-Australiens, Isoptera, ii. (17), 1909.

The Buxton and Hopkins collection contains ten series from the Samoan Islands, as follows :—

Soldiers, workers and larvae (No. 634) from Apia, Upolu Is., March 1924 ; from termitarium on trunk of mango tree ; no Trichonymphids in a dozen workers and larvae examined by Dr. Buxton.

Soldiers, workers and larvae (No. 604) from Apia, 31.1.24 ; “ from carton nest in Cocos trunk ; nests generally 4 to 8 ft. up ; common all along coast on coconuts, mangoes, etc., and not commonly on uncultivated trees ; quite probably introduced.”

Alate imagos, workers and larvae from Apia, 2.3.24 ; from carton nest on mango trunk.

Soldiers, workers and larvae (No. 632) from same nest as No. 604 ; no Trichonumphids in six workers examined by Dr. Buxton.

Soldiers from Stevenson's Grave, Apia (1,000 ft.), 29.3.24.

Soldiers, workers and larvae from Apia, 6.1.24 ; in carton nest on top of mango stump.

Soldiers, workers and larvae (No. 637) from Aleipata, Upolu Is., 7.4.24 ; from small nest on coconut.

Alate imagos, seventeen brachypterous queens, first-form nymphs, workers and larvae (No. 638) from Aleipata, 7.4.24 ; " large flourishing colony on unknown tree ; nest fairly closely examined bit by bit, but no first-form sexual forms or royal cell found ; a nest on the next tree and connected with the first by galleries was hard and woody and contained many neoteinics and winged adults."

Soldiers, workers and larvae from Namua Is., 10.4.24.

Alate imagos, nymphs, soldiers, workers and larvae from Fagamalo, Savaii Is., 2.8.24.

In addition to the above, the following material in the Bishop Museum belongs to this species ; specimens collected at Amauli, Tutuila Island, 5th Sept., 1923 (O. H. Swezey) ; and Fagasa, Tutuila Island, 8th Sept., 1923 (O. H. Swezey and G. P. Wilder).

This species is very closely allied to a New Britain species described elsewhere (Hill, Mem. Nat. Mus., Melb., No. 7), under the name *M. umbratarsus*, from which it differs in having smaller eyes and ocelli, smaller, paler, less setaceous and glabrous head and differently shaped pronotum.

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EXPLANATION OF TEXT-FIGURES AND PLATE

TEXT-FIGURES

1. *Calotermes (Neotermes) samoanus* Holmgr. Imago—head.
2. " " " " " antenna.
3. " " " " " pronotum.
4. " " " " " Soldier—head.
5. *Calotermes (Calotermes) repandus*, n. sp. Imago—side of head.
6. " " " " " pronotum.
7. " " " " " Soldier—head.
8. " " " " " antenna.
9. " " " " " hind leg.
10. *Calotermes (Cryptotermes) buxtoni*, n. sp. Imago—antenna.
11. " " " " " mandibles.
12. " " " " " pronotum.
13. " " " " " Soldier—head and pronotum viewed obliquely from behind.
14. " " " " " head and pronotum in profile.

PLATE I

- Fig. 1. *Calotermes (Neotermes) samoanus* Holmgr. Imago—thorax, legs and abdomen.
2. " " " " " forewing.
3. *Calotermes (Calotermes) repandus*, n. sp. Imago—thorax, legs and abdomen.
4. " " " " " wings.
5. *Microcerotermes peraffinis*, Silv.—termitarium.



1



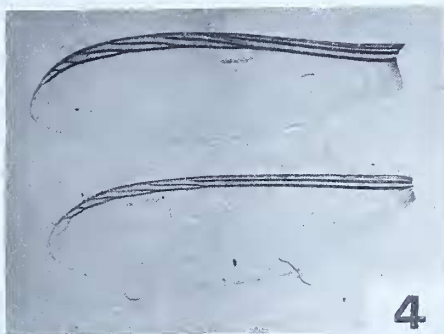
2



3



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4